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10/672,707	09/26/2003	Timothy J. Van Hook	00100.01.0022	1126

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EXAMINER	
MOTSINGER, SEAN T	

ART UNIT	PAPER NUMBER
2624	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/672,707	VAN HOOK ET AL.	
	Examiner	Art Unit	
	SEAN MOTSINGER	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 May 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,8-61 and 63-99* is/are pending in the application.

4a) Of the above claim(s) *14-33,36-54 and 69-88* is/are withdrawn from consideration.

5)☐ Claim(s) *98 and 99* is/are allowed.

6)☒ Claim(s) *1-6,8-13, 34-35, 55-61, 63-68 and 89-97* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/18/2009,5/18/2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response To Applicants Arguments/Amendments

Applicants arguments/amendments filed on 5/18/2009 have been entered and made of record.

Applicants Arguments with respect to the Rejection Under 35 U.S.C. 102 (e) as being anticipated by Molnar have been fully considered, and the rejections have been overcome by the present amendment.

Applicants arguments with respect to the rejections under 35 U.S.C. 101 have been fully considered and while the claim does not meet the transformation test, after additional; consideration by the examiner it appears the claim would necessarily require the use of a computer processor to perform the method and therefore the claims are “tied to” a particular machine.

Applicants arguments with respect to the rejections under 35 U.S.C. 102 (b) have been been fully considered and are not persuasive. Applicants arguments that the cited portion does not describe compressing tiles if the tiles are deemed suitable for compression where the compression recognizes duplicate data and reduces the amount of duplicate data stored within the tiles". The examiner notes that this language has scope which is different from the claim language. Further more compression suitability is determined by determining how many “fragments” and therefore “fragment triples” are

needed to describe the pixel. Memory is dynamically allocated to store as many "fragment triples" that are needed (column 6 lines 10-17). Note that the number of fragments correspond to the number of triangle primitives covering the pixel (or tile) (see column 3 lines 60- column 4 lines 5). Applicants discussion of fragments which are “visible” does not affect the reference reading on the claim Jouppi reduces the amount of duplicate data required to store the “visible” fragments. In fact in this context “visible fragments” are merely the fragments which cover a sample area of the pixel (or tile) i.e. the number of visible fragments is the number of primitives that cover the pixel (or tile).

Regarding applicant’s arguments with respect to the partial compression “employing at least two color designations” the examiner notes that partial compression corresponds to the dynamic allocation of two fragment triples each of which corresponds to a color designation (see column 6 lines 10-17). The examiner did not cite column 8 for this feature as alleged by applicant.

Regarding applicant’s arguments with respect to the amended feature of using a single bit to represent each of the color designations (in partial compression). This feature is taught in figure in figure 6A-B column 6 lines 45-57 note a single bit is used to point to one of two "fragment triples".

Regarding claims 4 and 89 applicant argues that Jouppi does not disclose determining if the fragment is wholly covered by a triangle primitive. The examiner disagrees in the

alternative embodiment of column 6 lines 10-20, fragment triples are dynamically allocated, that is the number of fragment triples corresponds to the number of fragments. The number of fragments corresponds to the number of primitives see column 3 (see column 3 lines 60- column 4 lines 5). This means that if the pixel or tile is covered by only one fragment (primitive that only one fragment triple will be required and allocated (full compression). If the pixel or tile is covered by only two fragments (primitives see column 3 lines 60- column 4 lines 5) that two fragment triples will be required and allocated (partial compression).

Rejections under 35 U.S.C. 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-6, 8-13, 34-35, 55-61 and 63-68 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

These claims require "determining that a tile is suitable for partial compression when a pixel in the tile is covered by a plurality of triangle primitives" this statement does not fit with the specification. The specification does not describe "determining that a tile is suitable for partial compression when a pixel in the tile is covered by a plurality of triangle primitives" Instead the specification describes determine that a tile is suitable for compression if the tile (not a pixel) is covered by two triangle primitives. (see paragraph 63). Furthermore the specification does not dictate the color compression employs at least two color designations for sub samples of the same *pixel* instead it discloses the color compression employs at least two color designations for sub samples of the same *tile* (this contradicts claim 11 which requires that a partially compressed pixel have no replacement color (i.e. only one color designation)). Applicant has failed to cite support for these elements in the specification.

Rejections Under 35 U.S.C. 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 8-10,13, 34-35, 55 89, 91 and 94 are rejected under 35 U.S.C. 102(b) as being anticipated by Jouppi et al US 6,128,000.

Re claim 1 Joupii discloses a method of data compression comprising: grouping a plurality of pixel data into a plurality of tiles (each of the plurality of pixels could be considered its own tile or a group of pixels (tile) could share a particular pixel memory column 6 lines 1-10); evaluating said tiles for compression suitability (dynamically allocate memory column 6 lines 15-20 note memory for "fragment triples" is dynamically allocated based on how many fragments cover the pixel (or group of pixels)), wherein said compression recognizes duplicate data (column 5 lines 15-20) and reduces amount of duplicate data stored within said tiles (column 5 lines 15-20); compressing said tiles if said tiles are deemed suitable for said compression (dynamically allocate memory column 6 lines 15-20 note if 4 fragment tipples are stored for each pixel which does not compressed in relation to sparse sub sampling column 8 lines 35-38 if less are needed memory is saved) wherein said evaluation comprises determining that a tile is suitable for partial compression when a pixel is covered by more then one triangle primitive (dynamically allocate memory column 6 lines 15-20 partial compression corresponds to be 2 fragment tipples being dynamically allocated note the number of fragment triples corresponds to the number of fragments (i.e. number of triangle primitives see column 3 line 60 through column 4 line 5)); and designating said tile for partial compression if it is deemed to be suitable (dynamically allocate memory column 6 lines 15-20 partial compression corresponds to 2 fragment tipples being dynamically allocated) and

wherein partial compression comprises employing at least two color designations for a same tile to compress the data (column 5 lines 45-55 note each fragment triple stores a color designation column 5 lines 45-50); partially compressing the tile using a single bit to represent each of the at least two color designations (figure 6A-B column 6 lines 45-57 note a single bit is used to point to one of two "fragment triples")

Re claim 2 Jouppi discloses wherein said pixel data is color information (column 5 lines 40-50)

Re claim 3 Jouppi discloses determining whether a tile is suitable for full compression; designating said tile for full compression if it is deemed to be suitable (dynamically allocate memory column 6 lines 15-20 full compression read to be 1 fragment tipple being dynamically allocated).

Re claim 4 Jouppi discloses determining whether said tile is wholly covered by a triangle primitive (column 3 lines 60-67, column 4 lines 1-10 note pixel (or tile) will have one fragment if it is wholly covered by a triangle primitive).

Re claim 5 Jouppi discloses wherein said step of compressing further comprises: storing a single color entry for each pixel in said tile (dynamically allocate memory column 6 lines 15-20 note if only one fragment is visible in the pixel, only one fragment will be stored).

Re claim 8 Jouppi discloses wherein said step of determining further comprises: determining whether said tile is covered by less than two triangle primitives (column 3 lines 60-67, column 4 lines 1-10 note pixel (or tile) will have two fragments if it is wholly covered by a triangle primitive).

Re claim 9 Jouppi discloses wherein said step of compressing further comprises: assigning an order to triangle primitives covering said tile (figure 6 fragment triples (corresponding to a fragment) are represented by 0 or 1); determining the color type of each sample of said tile (fragment triple columns 6 lies 25-40); creating a compressed format of color entries out of said pixel data (fragment triple columns 6 lies 25-40);; creating a pointer to said compressed format (column 6 lines 35-55).

Re claim 10 Jouppi discloses wherein said pointer comprises a bit encoding associated with each sample in said tile, wherein each bit represents an index to entries in said compressed format column 6 lines 50-65).

Re claim 13 Jouppi discloses wherein said tiles are 2.times.2 in size (column 6 lines 1-5).

Re claim 94 Jouppi discloses wherein partial compression comprises employing pointers to designation samples that correspond to an orginal color designation and a replacement color designation (column 6 lines 50-65 also see figure 4).

Re claims 34, 35 and 55, these claims are similar to claims 1, 2 and 13 respectively only they claim a graphics processing apparatus for performing these methods. Jouppi also discloses with a graphics processing apparatus see figure 1.

Re claim 89 and 91 these claims substantially correspond to claims correspond to claims 4 and 8 respectively and are likewise rejected.

Re claim 95 Jouppi discloses wherein the method is carried out by a graphics processor ()column 6 lines 15-16)

Re claim 96 Jouppi discloses wherein the method is carried out by a graphics processor ()column 6 lines 15-16)

Re claim 97 Jouppi discloses wherein the method is carried out by a graphics processor ()column 6 lines 15-16)

Rejections Under 35 U.S.C. 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 6, 12, 55-61, 63-65, 67-68, 90 and 92 are rejected under 35 U.S.C. 103(a) as being rendered obvious by Jouppi et al in view of Molnar.

Re claims 56-60, 63-65, 68, 90 and 92 These claims are substantially the same as claims 1-6, 8-10, 13, 89 and 91 respectively only they are directed to a computer readable medium storing a program for performing these methods. Jouppi does not expressly discuss a computer readable medium. Molnar discloses performing his method on a computer with software see figure 1 and column 4 lines 35-45. embodying a computer readable medium to perform the compression method of Jouppi as done Molnar is within the ordinary skill of the art and the result would be predictable. Therefore it would have been obvious to combine Jouppi and Molnar

Re claim 6 Jouppi discloses all of the elements of claim 3 and wherein said full compression compresses said pixel data into one color values per pixel (see claim 5). Joppi's color values are 5 bytes see column 5 lines 45-50. Joppie could easily

implemented to use one 32 bit word per color value (with one color values per pixel) as in Molnar 9 lines 50-55, and the results (32 bits per color) would be predictable. Therefore it would have been obvious to combine Jouppi and Molnar

Re claim 61 Jouppi discloses all of the elements of claim 58 and wherein said full compression compresses said pixel data into one color values per pixel (see claim 60).. Joppi's color values are 5 bytes see column 5 lines 45-50. Joppie could easily implemented to use one 32 bit word per color value (with one color values per pixel) as in Molnar 9 lines 50-55, and the results (32 bits per color) would be predictable. Therefore it would have been obvious to combine Jouppi and Molnar

Re claim 12 Jouppi discloses all of the elements of claim 1 and wherein said partial compression compresses said pixel data into two color values per pixel. Joppis color values are 5 bytes see column 5 lines 45-50. Joppie could easily implemented to use one 32 bit word per color value (with two color values per pixel) as in Molnar 9 lines 50-55, and the results (32 bits per color) would be predictable. Therefore it would have been obvious to combine Jouppi and Molnar

Re claim 67 Jouppi discloses all of the elements of claim 56 and wherein said partial compression compresses said pixel data into two color values per pixel. Joppi's color values are 5 bytes see column 5 lines 45-50. Joppie could easily implemented to use

one 32 bit word per color value (with two color values per pixel) as in Molnar 9 lines 50-55, and the results (32 bits per color) would be predictable. Therefore it would have been obvious to combine Jouppi and Molnar

Allowable Subject Matter

Claims 98 and 99 are allowed . Claims 11 and 66 are objected to as being dependent from a rejected base claim but would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims and and rejections under 35 U.S.C. 112 are overcome. Claims 11 and 66 contain the subject matter wherein said pointer comprises a bit encoding associated with each sample in said tile, wherein each bit represents an index to entries in said compressed format. Which is not found in the prior art of record, therefore these claims contain allowable subject matter.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SEAN MOTSINGER whose telephone number is (571)270-1237. The examiner can normally be reached on 9-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 571-272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bhavesh M Mehta/
Supervisory Patent Examiner, Art Unit 2624

Motsinger
7/22/2007